

# Mathematical Literacy for College Students (MLCS)

## Mathematics Student Learning Outcomes

### PROPORTIONAL REASONING

**PROPORTIONAL REASONING GOAL: Students will represent proportional relationships and solve problems that require an understanding of ratios, rates, proportions, and scaling.**

Students will:

**A. Recognize proportional relationships from verbal and numeric representations.**

For example: By examining a table of values that represents the relationship between two variables, students can determine whether the relationship is proportional and find unknowns using proportional reasoning.

**B. Compare proportional relationships represented in different ways.**

For example: Students can compare the total cost of a taxi ride in two cities when the cost is written in the form of an equation,  $C_1 = .25f + 2.5$  or  $C_2 = .2f + 3$ , or when the number of fifths of a mile and the cost is represented in a table.

**C. Apply quantitative reasoning strategies to solve real-world problems with proportional relationships based on an understanding that derived quantities may be described with whole numbers, fractions, or decimals, or in a combinations of these, and that to fully explain these relationships, units must be used.**

For example: Use dimensional analysis to convert units and measures when solving a problem; Use units consistently in describing real-life measures, including in data displays and graphs. Identify rate of change (linear and exponential) from a data set. Students can determine this relationship and use it to find values of one quantity that correspond to given values of the other quantity. Students should be able to solve proportional equations/problems such as "if it takes 3 gallons of gas to drive 50 miles, how many gallons should it take to drive 80 miles?"